Great Lakes Research Vessels

Dennis Donahue

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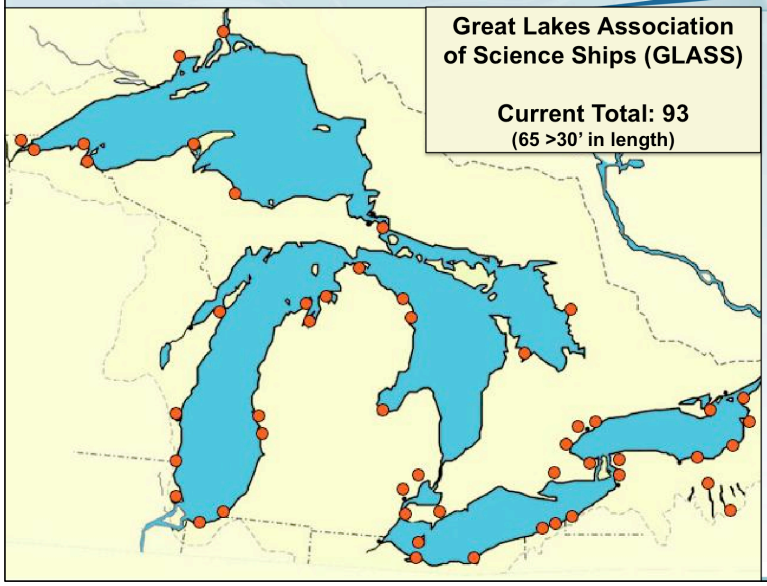
Great Lakes Research Vessel Inventory



- Great Lakes research fleet inventory has dropped from 160 to 93 in the past 10 years
  - This decrease is causing GLERL vessel operations to be more self-sufficient

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NOAA's 5-Year Research Plan Goals

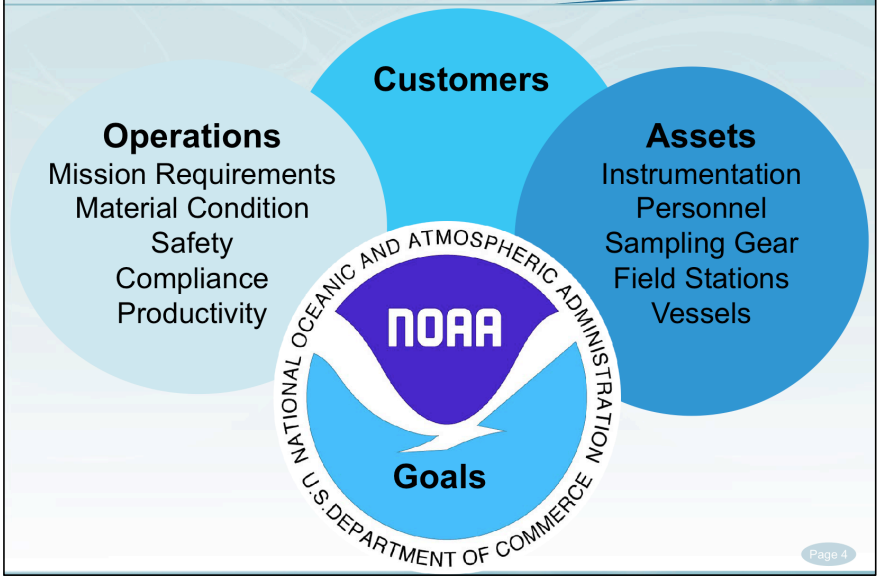
In addition to four thematic mission goals, NOAA recognizes the need for **mission support including Fleet resources.**

To Support the Nation's Commerce with Information for Safe, Efficient, and **Environmentally Sound Transportation.**

NOAA 5 year plan sub-goal:
8.4.1.
Explore, develop, and transition emerging technologies and techniques to enhance marine navigation safety and efficiency.

GLERL has a "Green" fleet. The first in the nation!

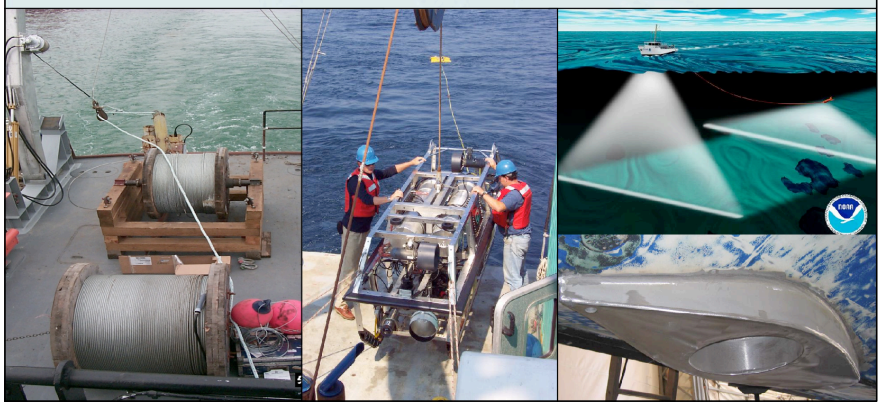
Vessel Operations Drivers



Customers:
Great Lakes Environmental Research Lab/ Cooperative Institute for Limnology and Ecosystem Research
Thunder Bay National Marine Sanctuary Program
National Ocean Service
National Weather Service
Ocean Exploration

Technology Objective – Balance Operations and Innovations

Accomplish Current Mission — Anticipate Future Opportunities
Support Traditional Sampling — Provide for Emerging Technologies
Optimized Platform — Maintain Versatility
Support Science Direction — Offer Alternatives



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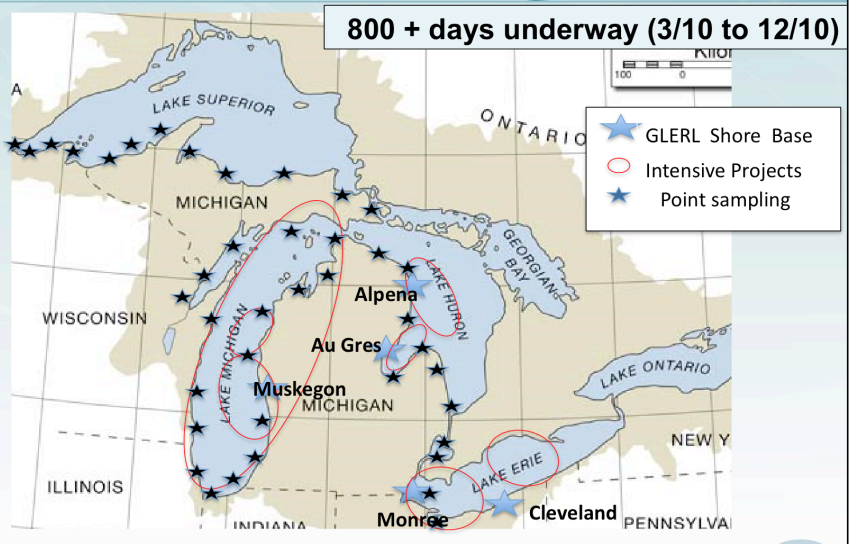
GLERL Vessel Activity 2010

800 + days underway (3/10 to 12/10)



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Muskegon, Mi - Home port for vessel operation, Deep water dockage, Engineering support, $900K capital investment (2011)
Alpena, Mi - Partnership with NOS – TBNMS, Deep water dockage, Dormitories, Shop space
Monroe, Mi - Partnership with local Science Center, Laboratories, Deep water leased dockage
Cleveland, OH - Partnership with NWS
Au Gres, Mi - Temporary base, Response trailer

Vessel Inventory ⟷ Mission

	Extended Cruise	Offshore	Lifting Large/ Heavy	Towed Instruments	Dive Support	Survey Mapping	Near shore Event response
	Range Multi-disciplined	Sea state Ice	Buoys Moorings	Trawls Sonar PSS/OPC	Tech Diving	Hydro Sub-bottom	Event response
No. of Suitable Vessels	1	1	5	6	5	4	7

- Increased capacity and capability in the past 10 years (2-14)
- Greater use of medium range, high speed vessels
- Largest vessel 80', only platform for extended offshore cruises

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Mission Driven Platforms

8001 – "Laurentian"
Small Research Vessel Class
Lake Michigan Offshore Monitoring
Lake-wide Benthic Survey

5501
Fast Response Buoy Tender
ReCON Buoys
Moored Instrumentation

5002 – "Storm"
Remote Sensing Platform
Multi-beam Sonar
Remotely Operated Vehicles

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Mission Driven Platforms

4105 – "Huron Explorer"
Dive Ops, Over the side sampling
Saginaw Bay Multi-stressor Project

3202
Side and stern lifting
Saginaw Bay Multi-stressor Project

2206
Event Response
Harmful Algal Blooms

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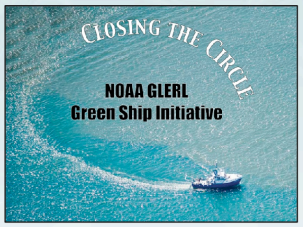
Automated Vessel Observation

- Added value during transit
- Contribute to Regional Observing System
- Resolve calibration and operational issues
- Test bed for new sensors

Wind speed and direction, Barometric pressure, Air temperature, Relative humidity, Sea surface temperature, Salinity, Dissolved oxygen, pH, RedOx, Turbidity, Chlorophyll, CDOM

Leadership Initiatives



GLERL 2010 Field Season
Carbon Footprint / Emissions Calculator

Reductions	PM	HC	CO	NOx	SO2	CO2*
Percent	-47.2	-67.4	-48.1	-9.1	-99.0	-77.7
Pounds	-378.0	-422.6	-4,170.5	-1,533.4	-330.8	-1.2M

Executive Order 13514
30% reduction in petroleum usage by 2020
21% reduction on green house gas emissions

GLERL vessels have already surpassed those target performance measures.

Resource Stewardship: Shore Facilities

Engineering Leadership

- LEEDS showcase project
- Wind and hydro turbines
- Solar PV and collectors
- Biodiesel and fuel cells
- Geothermal

Community Focus

- Architecturally appropriate design
- Public access
- Educational markers

Future Vessel Operations

Address the need for a new Small Research Vessel

Develop strategic plans for:

- Vessel and field equipment renewal
- State of the art science gear / vessel integration
- Automated observations
- Evaluation of emerging technologies
- Best utilization of shore facilities
- Marine technology leadership


Questions?
NOAA
GREAT LAKES